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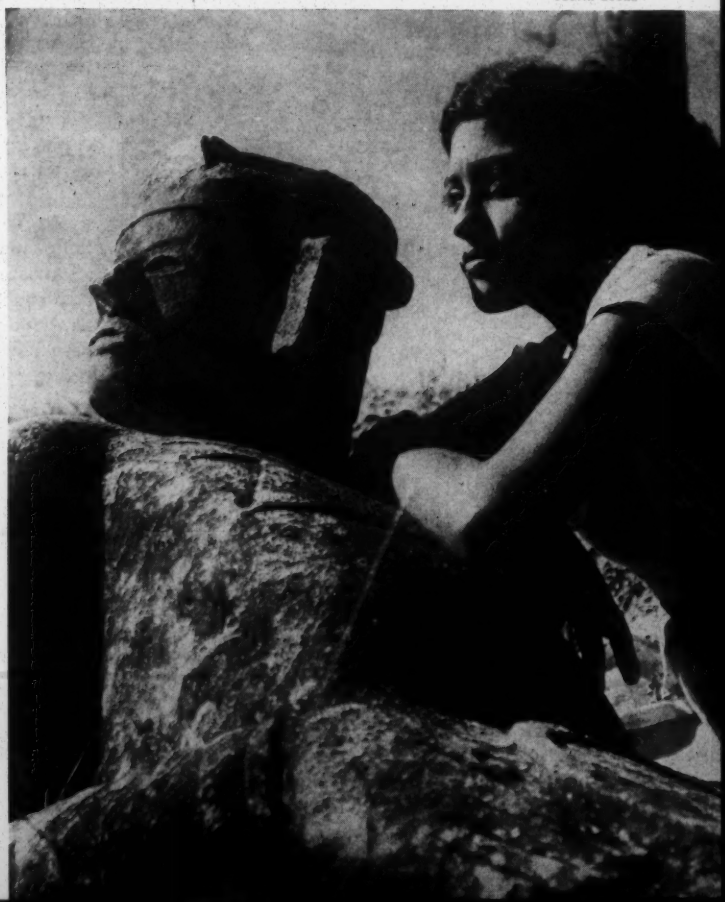
JUSTIN LOCKE



ALL AMERICA ISSUE

Both Mayan figure and modern señorita can claim to show the face of Mexico. Some of the continent's other facets are revealed in the stories that follow.

Next week: Oklahoma —50 years of statehood

extending from the United States border to the wasp waist of the country. Walled in by two mountain ranges, the Eastern and Western Sierra Madre, this central plain supports most of the population in a highland climate that is temperate and sunny. Mexico City, with an altitude of 7,350 feet, boasts bright Octoberlike days most of the year, with a summer rainy season to nourish outlying farms.

Picturesque corners still abound in Mexico City—walled patios that seem transported from 17th-century Spain. But the atmosphere of 20th-century industry touches all of the capital's 3,500,000 people. Sprawling suburbs reach farther and farther into the hills that cup the city. New factories rise in this outer fringe, almost on the slopes of the city's great guardian mountains, Popocatepetl and Iztaccihuatl, both more than 17,000 feet high. Supermarkets take the place of the old sidewalk displays of vegetables and fruit.

Busy Mexicans commute to their offices, snarl at each other in traffic, yet help complete strangers on and off buses. They jeer at tourist women who wear slacks, but use the old insulting word, "Gringo," almost as an endearment for North American friends. They watch their new skyscrapers being built and take for granted the sight of sandaled Indians back-packing the dirt from the excavations and eating village beans over an open fire at lunch time.

New manufacturing leaves its impact on Mexico. But the republic remains primarily an agricultural nation with cotton the number one crop. Cattle is a major Mexican enterprise. Those below are on their way to a slaughterhouse in the northern state of Sonora. Mexican ranchers still make long overland cattle drives reminiscent of old days in Texas. Foot-and-mouth disease—a disastrous cattle plague just after World War II—has been controlled in Mexico by vaccination.

Mexican cities have their distinctive characters. Mexico City's humorists can always bring down the house with a sly dig at stinginess of Monterrey's citizens. The joke has no foundation—in fact, some theorize that the idea of establishing a reputation for tightness was concocted in Monterrey itself. It does serve to draw attention to the northeastern city that often has been

MEXICAN RICHES meet as cattle rest in sight of copper mine and smelter in Sonora

FROM WESTERN WAYS. RAY J. MANLEY

MEXICO

A Modern Industrial Nation Emerges from The Haze of History

JUSTIN LOCKE

MORNING mists swirl around the flanks of mighty steel, concrete, and glass edifices lining Mexico City's Paseo de la Reforma. The Emperor Maximilian would never recognize the view. After Napoleon III of France handed Mexico over to him in 1864, Maximilian built this broad avenue. It has come a long way since then—and so has the Latin American country that, less than a century ago, could be toyed with by a European monarch.

Mexico City, with its breath-taking modern buildings, its traffic, its television, and its supermarkets, is the shining, show-place capital of a nation that has leaped forward into new and still growing importance.

Its population has doubled in 30 years to reach about 30,000,000. Only the United States and Brazil have more people in this hemisphere. Mexico is expected to double in population again in the next 25 years. To support such a growth in a land one-quarter the area of the United States, deserts and jungles are being watered and cleared. Industries are humming. Investments from the big neighbor to the north—the United States—are welcome.

People in the United States too often think of Mexico only as a rather hot, dusty, yet picturesque tourist attraction. Certainly the arid regions just south of the border remain largely a sparsely populated waste of cactus-dotted desert and tiny adobe villages. Yet even here, progress is felt. Irrigation dams in northwest Mexico turn the dust green. Iron ore, brought from barren areas just south of the Rio Grande, feed northern Mexico blast furnaces.

The heart of Mexico is the long triangular plateau, its point aiming southeast,

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Hernán Cortés and his conquistadors seem almost forgotten in this new nation with its drive toward progress and prosperity. No Mexican can entirely forget the Indian background, however. Every time a pavement cracks on a Mexico City street, businessmen and shop girls know that the great city is simply settling into the oozy floor of what once was Lake Texcoco. Aztecs, seeking a place to build a city, were on the lookout for a tribal omen—an eagle perched on a cactus with a serpent in its talons. On an island in the lake the Aztec leaders spotted the bird and snake atop the plant. The Aztec capital rose on the island.

Gradually the lake was filled in or drained. The Aztec city fell to Cortés in 1521. But the memory lingers. Today's National Palace looms on the site of one of Montezuma's royal residences. The first church built in North America (in 1525) sets its foundations on the ruins of an Aztec temple. And when Mexican kindergartners, below, sing praises to their national flag, it's a safe bet that they know the story of the emblem it carries—an eagle with a snake, perched on a cactus.—E.P.

National Geographic References: ***Map***—Mexico and Central America (paper, 75¢). ***Magazine***—September 1956, "Gifts for the Jaguar God" ($1.00); February 1955, "Sonora Is Jumping" ($1.00); March 1953, "Experiment in International Living" and including wall map of Mexico and Central America ($1.00); October 1952, "Lost Kingdom in Indian Mexico" ($1.00); December 1951, "Mexico's Booming Capital" ($1.00). ***School Bulletins***—May 3, 1954, "Mexico Celebrates the 'Cinco de Mayo'" (10¢); November 16, 1953, "Coffee Paces Mexico's Progress" (10¢).

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called Mexico's "Pittsburgh" because of the industry that gathers there. Guadalajara, in the west, ranks as the republic's second metropolis—the trade center for a mining and agricultural region. Puebla, near Mexico City, is the city of churches. Acapulco is the Pacific coast vacation town. Veracruz, on the Gulf coast, is the largest seaport.

Despite heavy industry, Mexico still deserves its fame as a producer of ceramics, tooled leather, glassware, basketry, and silver jewelry. Spanish and Indian cultures, blended in the average Mexican, often give him a unique talent as a craftsman or artist. The result is obvious in any handcraft shop, in the daringly modern architecture of the capital, in brilliant murals, and even in stylish hat shops (above) where Mexican ideas and materials add flavor to Paris fashions.

Silver—whether or not in jewelry—is still Mexico's outstanding mineral. The country leads the world in silver production. But other minerals are being discovered and exploited. Besides iron ore, the arid northern deserts and mountains conceal copper deposits. Miners like those below are getting it out. Uranium has been discovered in the southern state of Oaxaca. Sulphur mining, near Veracruz, has helped open up a jungle region where natives lived by primitive barter until a few years ago.

JUSTIN LOCKE

Almost certainly, other metals and earths await discovery. And almost certainly, too, Mexico's coal supplies will become less and less adequate to fill the demands of industry. To compensate for this lack, Mexico imports coal now. But there is a new scheme designed to lessen the need for coal.

Last spring the gates of Latin America's biggest dam swung closed and water began to back up in the basin of the Papaloapan River, near Veracruz. The completion of this $15,000,000 dam, one and a quarter miles long, is only the first step in a huge project inspired by the Tennessee Valley Authority.

The Indian cultures that glittered in Mexico before the coming of

the time, the voyage was significant only in the realm of exploration and science, for commerce had long since found better ways of reaching the Orient.

But 20th-century wars, and threats of jet-plane or rocket attack today, have moved Canadian and United States defenses ever farther north. Now a string of 50 radar bases called the DEW Line stretches along the very Arctic shores approached by the traditional Northwest Passage. It is necessary to supply these bases and several near-by weather stations. Being cheaper and more practicable to do this by ship than by air, our military strategists now are seeking a true Northwest Passage with all the old fervor of a Cabot or Cartier.

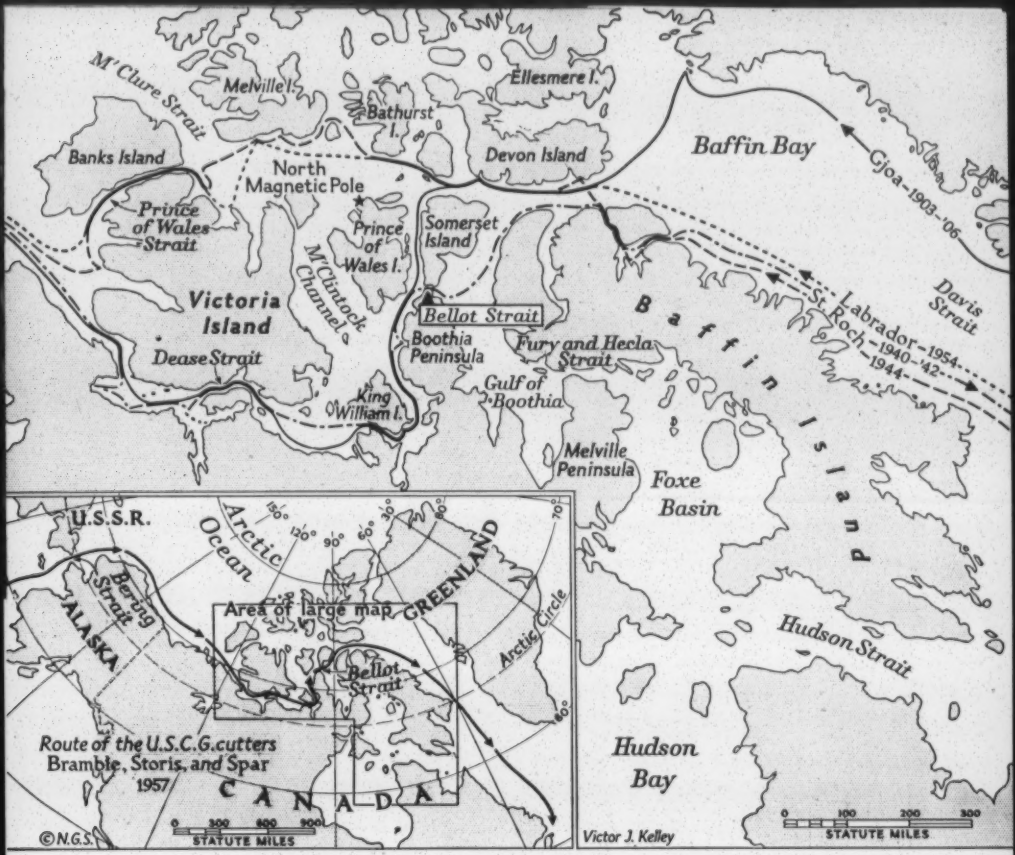
At long last, they believe they have found it (see inset map above)—a route which big ships can navigate during the brief Arctic summer when the ice pack has retreated or is vulnerable to icebreakers. Credit for the culminating discovery goes to the officers and men of three United States Coast Guard vessels —the *Storis*, *Bramble*, and *Spar*—which this summer made the complete passage from west to east. Credit is gratefully shared with the Canadian icebreaker *Labrador*, veteran pathfinder of the North, which helped the American ships through narrow Bellot Strait (below).

The Coast Guard expedition showed that large vessels could traverse this ice-choked, shallow, riverlike body of water at the northernmost tip of the continent. This discovery will allow future supply voyages to remain close to shore where ice is less a problem and where many of the bases are located.

U. S. NAVY

Previously it had been believed (mostly on the basis of the *Labrador* passage of 1954, see map) that large vessels had to thread their way through the more open waters far out among the islands. The 1957 voyage proved that the inner passage could be navigated in most part without the help of huge icebreakers. The Coast Guard cutters did most of their own trail blazing, using such time-honored icebreaking techniques as that shown above. These men with axes dangle from the prow of the *Spar* as she plows through heavy ice in Simpson Strait, between King William Island and the mainland. The concrete blocks pound the ice but are used primarily as weights to warp the ship free when it becomes fast.

At the left, *Storis* crunches its way toward slitlike Bellot Strait, under



Found: Northwest Passage

U. S. COAST GUARD

SHORTLY after Columbus discovered America, explorers began the search for a northwest passage, a water route through or around North America to the fabled riches of China. Like knights seeking the Holy Grail, they made voyage after voyage, on land and sea, and eventually found that there was no such passage through the continent. However, so encaptured was man in the grasp of his dream that he continued to search for a sea route in the only possible remaining area—among the frigid waters and desolate islands of the Canadian Arctic.

Not until 1903-06, more than four centuries after Columbus, did man navigate a northwest passage across the roof of North America. The trick was turned by Norway's Roald Amundsen in the 70-foot schooner *Gjoa* (see large map above). At

Tim Did His Homework in Bellot Strait

SOME fathers take their sons to football games. Others show them how to fly model airplanes. But young Tim Wood hit the jack pot. His father took him along on the Coast Guard cutter *Storis* to find a new "Northwest Passage."

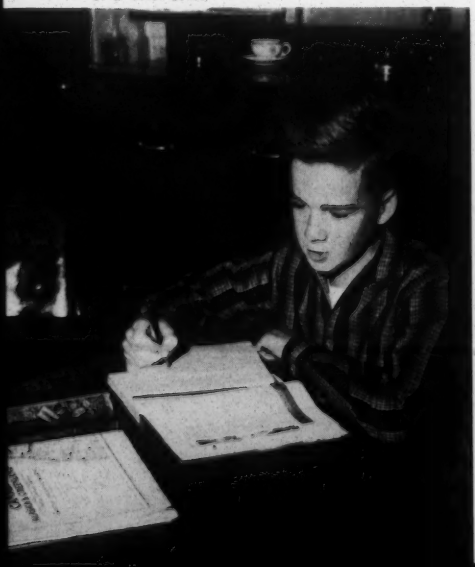
U. S. COAST GUARD

This exciting chance to learn a geography lesson firsthand came when Tim's father, Commander Harold L. Wood, shown right with 13-year-old Tim on the *Storis*'s deck, was made flagship commander of the U. S. task unit in last summer's operation. The Coast Guard granted permission for Tim to ship aboard for the historic transit.

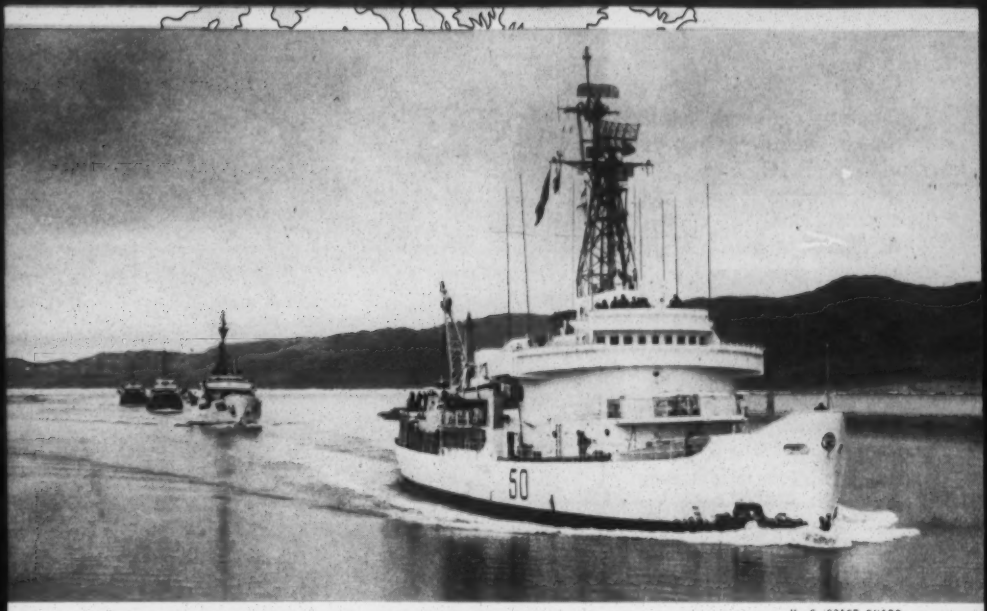
Tim made the most of it. When his schoolmates ask him, he'll be glad to tell how he stood half-hour tricks daily with the quartermaster at the wheel on the bridge, how he clambered all over the big white ship learning its secrets, and how his Dad taught him about Arctic seas and weather. And there was the time he went ashore on Victoria Island with a working party to erect radar beacons which would help guide future ships through the treacherous waters.

Pages from geography books and National Geographic maps came suddenly alive (below). History fairly leaped from the words "M'Clintock Channel" on the map as he read of the Englishman Sir Francis McClintock's adventures in his book "Arctic Seas." By light at night he devoured "Arctic Explorations" by the American Dr. Elisha Kent Kane. Since the voyage overlapped with Tim's school year, he also boned up on junior high mathematics. Like any father, Commander Wood insisted on seeing each night's lesson.

U. S. COAST GUARD



Now back in school in Juneau, Alaska, home port of the *Storis*, Tim might be excused if his eyes occasionally drift above the pages of his textbook, seeking some far horizon. He is recalling his summer in the Arctic. Does he have a teen-ager's advice for future explorers? Definitely. "Be sure to stock up on candy and soft drinks," he says. "They sure will come in handy."—A.P.M.



U. S. COAST GUARD

HMCS *LABRADOR*, followed by United States Coast Guard Cutters *Storis*, *Bramble*, and *Spar*, thread fiordlike Bellot Strait. Midsummer finds this section free of ice

clouds in the distance. Strangely enough, when the *Labrador* joined the three United States vessels and conveyed them through Bellot Strait (above) they encountered sections completely free of ice and found that their greatest navigational hazard was shoal waters. This picture was taken from a small vessel that preceded the *Labrador* making constant soundings. Adequate depth was easily found.

Bellot Strait is the key to the new Northwest Passage. In its story lies compacted much of the grim glamor of Arctic exploration. The tale goes back to Sir John Franklin, who made two grueling land journeys and followed them in 1845 with a water-borne expedition. When he and his men failed to return, world-wide concern sparked at least 40 search parties.

As a result of these valiant and humane efforts, many of the land masses and waterways of the Arctic were mapped. But Franklin and his men had long since perished, the last of them on King William Island.

Among the names emerging from the great man hunt was that of Lt. Joseph René Bellot of the French navy. Lt. Bellot obtained a leave of absence in 1851 to join William Kennedy in the *Prince Albert*, sent by Lady Franklin in search of the missing expedition. Kennedy and Bellot discovered and traced a small channel of water separating Somerset Island from Boothia Peninsula. Earlier, Sir John Ross had contemptuously ignored the "shallow inlet" and named it Hazard Inlet. Captain Kennedy renamed it Bellot Strait in recognition of the considerable services rendered by his second in command.

Two years later, while participating in the Sir Edward Belcher expedition, the likeable Bellot, with two men, was separated from the party and cast adrift on an ice floe. His two companions were later rescued, but Bellot had slipped through a crevasse to his death.

One of the reasons present-day explorers come to grief less often than their predecessors is that the Arctic is warmer than it used to be. As this trend continues, a definite summer navigation schedule seems possible. If so, last summer's historic transit along the northern edge of the continent will indeed prove to have been the end of the search for a Northwest Passage.—R.G.

4,000 miles an hour, tilting gradually from the vertical.

In 146 seconds the first stage rocket runs dry and tumbles away toward the Atlantic. Vanguard is now about half as long. The second stage takes over, boosting speed to about 10,000 miles an hour and tilting the vehicle more. Two minutes later, at an altitude of 140 miles, this rocket also burns out. Instead of falling away, it remains attached to the third stage, its control system guiding Vanguard in a great arc until it races straight and level, 300 miles up, toward Africa.

By now the heavy, dragging film of surface atmosphere has been penetrated. There is no sense of speed, no "wind" to tug at protruding objects. So Vanguard's plastic nose cone has exploded away, leaving the shining satellite exposed to the emptiness outside.

LITTLE BROTHER of the American satellite is this small sphere undergoing tests. Baby orbs like this will be fired into orbit to pioneer the way for the full-size "moon." Only about six inches in diameter, the test satellites carry tiny radio transmitters that can be received by tracking stations.

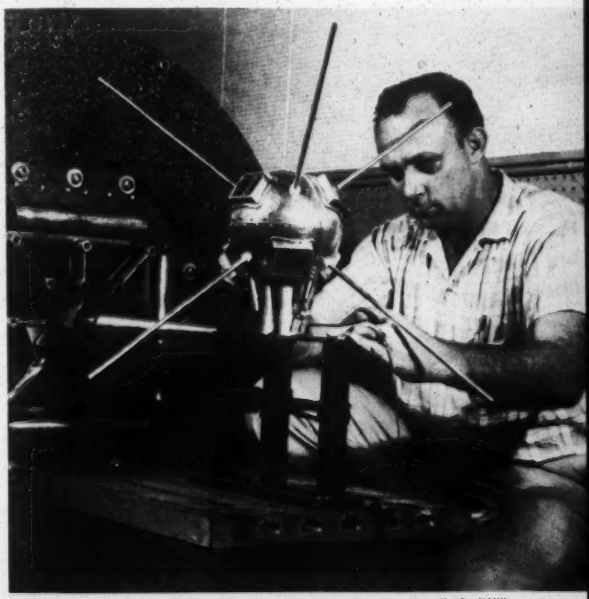
Having put the missile into level flight, the second stage is now useless. It breaks away to splash into the ocean east of Martinique.

The third stage—simply Vanguard's nose section—begins spinning under the twist of small side rockets. Then the last rocket engine blazes into life, burning solid fuel. In 30 seconds it is streaking at orbit speed—18,000 miles an hour—the satellite sitting in its nose like a figurehead.

Abruptly the last engine dies. A spring pops the satellite free. And Sputnik has company.—

Dr. Melville B. Grosvenor, President of the National Geographic Society, announces the development of a chartlike Satellite Finder to track the flight of man-made moons. Designed by Wellman Chamberlin of The Society's cartographic staff, the device shows a viewer where and how high to look.

Finder kits have been sent to members of "Moonwatch" as a contribution to International Geophysical Year. Hundreds of newspapers, radio and television stations have received them. They are available to science teachers, students, and backyard astronomers. Orders are being taken at the Society's headquarters, Washington 6, D. C., at $2.00 each postpaid. The December issue of the *National Geographic Magazine* will publish the finder.



U. S. NAVY

Dictionary for Tomorrow's Spacemen

Science has given specific names to regions of the limitless sky —man's new frontier. Here they are, from ground up.

Troposphere: Lowest layer of earth's atmosphere, varying from five to ten miles in height.

Stratosphere: Next layer extending to 20 miles altitude; traveled by jet planes.

Chemosphere: Thirty-mile-deep layer where atoms undergo chemical changes.

Ionosphere: Belt of rarefied air, 200 miles deep, where particles are electrically charged (ionized).

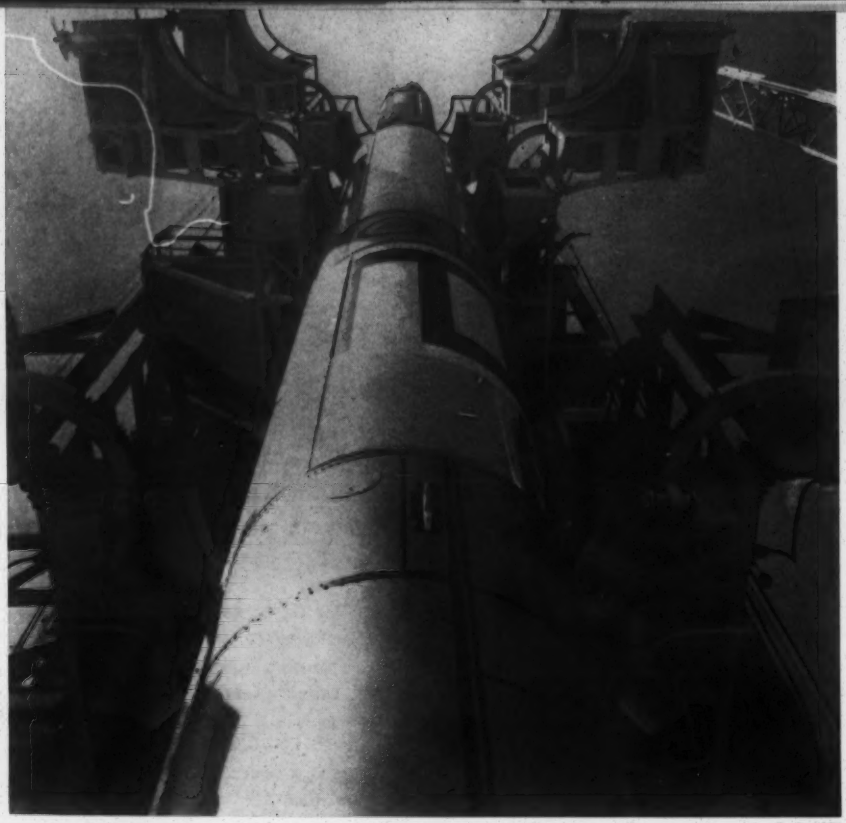
Exosphere: Vaguely defined borderland where the last vestiges of atmosphere thin out into space.

Interplanetary Space: Region within our solar system.

Interstellar Space: Region of space among the stars.

Intergalactic Space: The vast area among the galaxies.

The much-used term "outer space" should apply only to incredibly distant interstellar and intergalactic space. Sputnik travels in the exosphere—the threshold of space.



U. S. NAVY

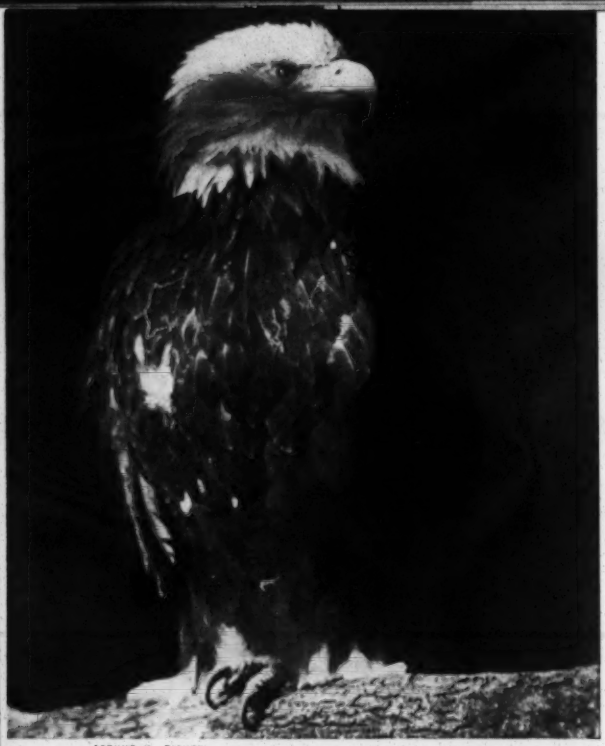
Launching a U. S. Satellite

AIMING at the sky it will conquer, Vanguard rocket rests against its gantry crane at Cape Canaveral, Florida. Scientists plan to send this sleek giant roaring aloft with the first of several American satellites to share the inner fringe of space with Russia's Sputnik.

A satellite launching vehicle like this faces an incredible task. Somehow it must fight its way through the comparatively dense layer of Earth's atmosphere, keep faithfully on course, change elevation, and increase speed so that it moves horizontally at the right height and speed to put its spherical cargo into orbit. As yet, no single rocket can do all this. So Vanguard is a combination of three separate rockets, or stages, each designed for its part in the drama.

The miracle will happen probably late some evening. Once the rocket engines are fueled and the controls made ready, the gantry will open its embracing balconies and trundle away on tracks, leaving the gleaming 72-foot monster standing alone on its launching pad. Men will hurry to a near-by concrete blockhouse where they will be safe from the searing blast of hot gases at take-off.

Somewhere a voice will count down the last seconds. With thunderous shock waves, white hot fire, and billowing smoke, Vanguard will rise ponderously into the night, its 11-ton weight being pushed laboriously upward by the flame-spewing blast of liquid fuel. Within two minutes it will be nearly 40 miles high and moving



ARTHUR H. FISHER

Haughty of eye and powerful of wing, the American national bird has become the object of countless legends. His giant eyrie has been depicted as a prison for the small children he has carried off. On the other hand, he has been called a cheat and a coward.

Actually, the bald eagle is a peaceable, lazy home-lover. He generally can't be bothered to fight for a meal, preferring to flap off instead of attacking birds far smaller than he is.

His principal battle is for survival in the nation whose seal he adorns.

BALD EAGLE

That Rare American

When the bald eagle was chosen by Congress as the principal emblem of the United States coat of arms, elder statesman Benjamin Franklin objected.

"He is a bird of bad moral character," he wrote. "He does not get his living honestly . . . but, like those among men who live by sharping and robbing, he is generally poor, and often very lousy."

Whatever his morals, the white-headed old national bird is beloved by 170,000,000 Americans. When some regions report a decrease in bald eagles, everyone worries. Once considered a tempting target, the big bald eagle has suffered since Franklin's day. Now a Federal law protects the great bird. But the vast encroachment of towns, cities, highways, and farms into what were once the eagle's wild haunts has made the feathered emblem a comparatively rare sight.

And what a sight. A full-grown female (they're bigger than the males) may spread her wings nearly eight feet from tip to tip. Only the California condor (GSB December 3, 1956) is a bigger bird of prey on this continent.

Despite his size and stern demeanor, "Baldy" is a mild-mannered gentleman with a streak of laziness that leads him to feed on dead fish, washed handily ashore. He's not above hijacking fresh food from an osprey, or purloining farm chickens.

A home-lover, Baldy mates for life and tends to use the same nest year after year, adding to it and decorating it until it becomes a huge domain weighing perhaps a ton. One nest in Florida was furnished with a tennis shoe, laundry bleach bottle, gunny sack, photographer's flashbulb, and fairly recent copy of a weekly magazine.—⊖